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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,157	06/20/2003	Jeremy Donaldson	10015085-6	6924

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EXAMINER

DO, AN H

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 05/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/601,157	DONALDSON ET AL.	
	Examiner	Art Unit	
	An H. Do	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2004 and 24 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>5/17/04</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

The Amendment filed on 04 May 2004 and Response to Election/Restriction Requirement filed on 24 August 2004 have been acknowledged.

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 1-7 and 9-18 in the reply filed on 24 August 2004 is acknowledged. The traversal is on the ground(s) that the Office's characterization of the inventive elements contradicts the inventive elements described in the claims. This is not found persuasive because claim 8 belongs to Group II as classified in class 257, subclass 618 which is distinct invention as described in the previous Election/Restriction Requirement.

The requirement is still deemed proper and is therefore made FINAL.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 17 May 2004 was filed and is being considered by the examiner.

Drawings

3. The drawings were received on 04 May 2004. These drawings are acceptable.

Withdrawal of Allowable Subject Matter

4. The indicated allowability of claims 5-7 is withdrawn in view of the newly discovered reference(s) to Kawamura et al (US 6,310,639) and Buswell et al (US 6,666,546). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-4 and 9-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawamura et al (US 6,310,639).

Regarding claim 1, Kawamura et al disclose the following claimed features:

A structure (Figures 3-4B) comprising:

-a substrate (303, 307) having a thickness (Figure 3) defined by a first surface (bottom surface) and a generally opposing second surface (top surface of 307);

-a trench (327) having a long axis and received in the first surface (bottom surface) and extending through less than an entirety of the thickness of the substrate (Figure 4A); and,

-a plurality of slots (Figure 3, vias 321, 323) extending into the substrate (303, 307) from the second surface (top surface of 307) and connecting with the trench (327) to form a compound slot (the tapered trench slot) through the

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substrate (303, 307), wherein a cross-section of the trench taken transverse the long axis has a first width (wider opening portion beginning at bottom surface) that is proximate the first surface that is greater than a second width (narrower opening portion towards top surface of 307) that is more distal to the first surface (Figures 4A, 4B) (column 6, line 63 to column 7, lines 1-6).

Regarding claims 2 and 10, wherein the substrate (303, 307) comprises silicon (column 6, line 13).

Regarding claim 3, wherein the substrate comprises a semiconductor substrate (Figure 3, element 303, 307, column 6, line 13) incorporated into a print cartridge (Figure 2).

Regarding claims 4 and 14, wherein the compound slot (the tapered trench slot) comprises a fluid-feed slot (column 6, lines 63-66).

Regarding claim 9, a structure (Figures 3-4B) comprising:

- a substrate (303, 307) having a thickness (Figure 3) and a first surface (bottom surface);

- a trench (327) having a first dimension (wider opening portion beginning at bottom surface) and a second dimension (narrower opening portion towards top surface of 307) with respect in the first surface (bottom surface), the trench (327) extending through less than an entirety of the thickness of the substrate (Figure 4A); and,

- a plurality of slots (Figure 3, vias 321, 323) extending into the substrate (303, 307) from a second surface (top surface of 307) and connecting with the trench (327) to form a compound slot (the tapered trench slot) through the

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substrate (303, 307), wherein the first dimension of the trench (wider opening portion beginning at bottom surface) is greater than the second dimension (narrower opening portion towards top surface of 307) (Figures 4A, 4B) (column 6, line 63 to column 7, lines 1-6).

Regarding claim 11, further comprising a plurality of chambers (317, 329) that are in fluidic communication (vias 321, 323) with the compound slot (the tapered trench slot) (Figure 3).

Regarding claim 12, further comprising a plurality of resistors (309) that are configured to cause fluid to be ejected from the plurality of chambers (317, 329) (Figure 3).

Regarding claim 13, further comprising a plurality of fluid ejection elements (Figure 3, heating resistors 309) each associated with one (317) of the plurality of chambers.

7. Claims 1-7 and 9-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Buswell et al (US 6,666,546).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

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Buswell et al disclose in Figures 2, 3 and 5-5C the following claimed features:

Regarding claims 1 and 9, a structure (Figures 5-5C) comprising:

- a substrate (308b) having a thickness (Figure 5B, thickness t) defined by a first surface (310b) and a generally opposing second surface (312b);

- a trench (503-505) having a long axis and received in the first surface (310b) and extending through less than an entirety of the thickness (t) of the substrate (Figure 5B); and,

- a plurality of slots (Figure 5B, terminal regions 504b, 504c) extending into the substrate (308b) from the second surface (312b) and connecting with the trench (504) to form a compound slot (a bowl-shaped type as shown in Figures 5B, 5C) through the substrate (308b), wherein a cross-section of the trench taken transverse the long axis has a first width (a bowl-shaped portion towards surface 310b) that is proximate the first surface that is greater than a second width (rectangular-shaped portion towards surface 312b) that is more distal to the first surface (Figures 5B, 5C).

Regarding claims 2 and 10, wherein the substrate (308b) comprises silicon (column 3, lines 10-14).

Regarding claim 3, wherein the substrate comprises a semiconductor substrate (column 1, lines 66-67) incorporated into a print cartridge (Figure 2).

Regarding claims 4 and 14, wherein the compound slot (a bowl-shaped type as shown in Figures 5B, 5C) comprises a fluid-feed slot (ink feed slots 503, 504, 505).

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Regarding claim 5, a structure (Figures 5-5C) comprising:

- a substrate (308b) having a thickness (Figure 5B, thickness t) defined by a first surface (312b) and a generally opposing second surface (310b);

- a trench (503-505) having a long axis and received in the first surface (bottom surface) and extending through less than an entirety of the thickness (t) of the substrate (Figure 5B); and,

- a plurality of slots (Figure 5B, terminal regions 504b, 504c) extending into the substrate (308b) from the second surface (310b) and connecting with the trench (504) to form a compound slot (a bowl-shaped type as shown in Figures 5B, 5C) through the substrate (308b), wherein a cross-section of the trench taken transverse the long axis has a first width (rectangular-shaped portion) that is proximate the first surface (312b) that is less than a second width (a bowl-shaped portion towards surface 310b) that is more distal to the first surface (Figures 5B, 5C).

Regarding claim 6, wherein the first width comprises a minimum width (504a) of the compound slot.

Regarding claim 7, wherein a maximum width (504b, 504c) of the compound slot is at the second surface (310b) (Figures 5B, 5C).

Regarding claim 11, further comprising a plurality of chambers (Figure 3, ejection chamber 322) that are in fluidic communication with the compound slot (Figure 3 shows ejections chambers 322 in fluid communication with slots 303, 304, 305).

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Regarding claim 12, further comprising a plurality of resistors (firing resistors 314) that are configured to cause fluid to be ejected from the plurality of chambers (Figure 3, ejection chambers 322).

Regarding claim 13, further comprising a plurality of fluid ejection elements (Figure 3, firing resistors 314) each associated with one (ejection chamber 322) of the plurality of chambers.

Regarding claims 15 and 17, wherein the first the first dimension is about 30 microns to about 300 microns (column 6, lines 13-23).

Regarding claims 16 and 18, wherein the first width is about 200 microns (column 6, lines 13-23).

Response to Arguments

8. Applicant's arguments with respect to claims 1-4 have been considered but are moot in view of the new ground(s) of rejection. The newly found references of Kawamura et al (US 6,310,639) and Buswell et al (US 6,666,546) disclose the claimed invention as discussed above.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to An H. Do whose telephone number is 571-272-2143. The examiner can normally be reached on Monday-Friday (Flexible).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



An H. Do
May 10, 2005